

## **Frequently Asked Questions about NC OneMap Statewide Orthoimagery 2010**

The following questions and answers are organized in five sections:

(1) Orthoimagery Products, (2) Imagery Acquisition and Sharing, (3) What the Project Means for Counties, (4) Using the Orthoimagery Products, and (5) This Year.

### **1. Orthoimagery Products**

#### **1.1. What imagery products will the project deliver to the counties?**

The products will be statewide digital orthoimagery at a ground resolution of 0.5 feet (6-inch pixels, equivalent to 1 inch = 200 scale mapping), true color, in uncompressed (GeoTIFF) and compressed (MrSID, 20 to 1 ratio by tile and MrSID, 50 to 1 county mosaic) formats, validated metadata (Federal Geographic Data Committee standard), and a tile index (shapefile) for the 5,000 by 5,000 foot tiles. Compressed tiles and county mosaics will be included for all neighboring counties on the portable drive delivered to each county. Imagery in compressed format will be available for free download through NC OneMap ([www.nconemap.gov](http://www.nconemap.gov)).

#### **1.1b. When will imagery products be delivered to counties?**

The delivery of orthoimagery datasets to counties will occur by April 30, 2011. The statewide scope of the project, high resolution of the imagery, processing in large multi-county blocks, and extensive visual and positional quality control all take months to complete before data will be finally packaged by county and approved for distribution. Until products are approved for distribution, a specific delivery schedule by county cannot be predicted.

#### **1.2. Will the new orthoimagery products include large water bodies such as the Pamlico Sound?**

The flights will not acquire new imagery over the sounds or ocean beyond at least 2,000 feet from the apparent shoreline represented in the statewide county boundary dataset published by NC DOT. However, to meet search and rescue operations and for map design purposes, the project will integrate available satellite or aerial images of water to represent large water surface in final ortho products. Therefore, the products will not have gaps over the water bodies.

#### **1.3. Will the products include a full picture of the county (a mosaic of compressed imagery)?**

Yes, the project will create a mosaic of the tiles so that a county may load the full county for convenient display for 911 base mapping and local GIS applications. The compression ratio will be 50 to 1. The size of one compressed 200-scale tile would be about 15 MB. The size of a county mosaic will vary from approximately 1.4 GB to 6.9 GB.

**1.4. Will color infrared imagery be included?**

No. The images will be true color only for this project (using the red, green and blue bands collected by the sensors). However, the digital cameras will collect and store an unprocessed fourth band (infrared). Processing the fourth band into orthoimagery represents a significant technical effort and expense. For somewhere on the order of 10 to 12 percent on top of the delivered cost of the true color product, a contractor could process a second set of imagery using the fourth band. The potential benefit from color infrared imagery relating to forest assessment, fire prevention, impervious surface and other ground features could be realized after this project in selected locations, supported by separate funding sources. For a fact sheet and information on how to obtain the semi processed or raw data, see Acquisition of Color Infrared Aerial Imagery Data on the NC Orthos overview page at NC OneMap.

**1.5. For 911 purposes, our county would like a copy of imagery from our neighboring counties. Where will copies be available and in what format(s)?**

For each county, this project will furnish copies of compressed imagery from neighboring counties (tiles compressed 20:1 and county mosaic compressed 50:1 using MrSID format) in addition to the county datasets on a portable disk drive.

**1.6. Will elevation datasets be delivered to counties on the portable drives?**

No. Elevation used in the processing of orthoimagery will be based on digital elevation models derived from Light Detection and Radar (LIDAR) bare earth data managed by the NC Floodplain Mapping Program. Orthoimagery contractors may modify the digital elevation models if terrain has changed significantly. The current and modified elevation datasets will be available for download from [www.ncfloodmaps.com](http://www.ncfloodmaps.com).

**1.7. Will this project provide oblique imagery?**

No. The deliverables will be statewide orthoimagery that will be made available to all counties and the public at no charge. This product meets the state specifications and is best suited for representing ground locations and ground features including street centerlines, property boundaries, streams and other base mapping features. This approach best serves the purpose of statewide, consistent, current imagery that can be widely shared.

**2. Imagery Acquisition and Sharing – How and When****2.1. What technical specifications will be used for the orthoimagery?**

The imagery will be created and delivered consistent with the new state standards (signed by the Secretary of State on October 1, 2009). See *North Carolina Technical Specifications for Digital Orthophoto Base Mapping, Land Records Management Division*, North Carolina Department of the Secretary of State, Edited by Thomas W. Morgan, August 20, 2009. See <http://www.secretary.state.nc.us/land/>

***2.2. When will the project capture the aerial images?***

During January, February, March and April 2010 depending on flight conditions for leaf-off orthoimagery that meets state specifications.

***2.3. Will digital or film cameras be used to capture the imagery?***

The project will specify digital cameras for data capture. Data acquisition will be consistent with *North Carolina Technical Specifications for Digital Orthophoto Base Mapping*, Adopted October 1, 2009. See <http://www.secretary.state.nc.us/land/>

***2.4. Will the orthoimagery be delivered after all counties are complete or county by county as soon as it is processed?***

Data will be delivered after approval by the NC 911 Board. This project has many steps in aerial image acquisition, processing, and quality control. There will be four regions, multiple contractors, processes to resolve any differences in images at regional boundaries, and quality control for positional accuracy and visual quality. Project status is updated weekly and displayed on the project website at [www.nconemap.gov](http://www.nconemap.gov). Data for neighboring counties will be included in the products for each county. Until the final products are approved for distribution, a specific delivery schedule by county cannot be predicted.

***2.5. Will each county be involved in a contracting process with orthoimagery service providers?***

No. The City of Durham will contract with CGIA to manage the orthoimagery project. CGIA will enter into an agreement with the NC Floodplain Mapping Program to manage the data development. The NC Floodplain Mapping Program will task its contractors from an existing Qualifications-Based Selection (QBS) contract to acquire the orthoimagery, and also use an existing contract with the NC Geodetic Survey for system upgrades and management of a new Qualifications-Based Selection of contractors for horizontal quality control.

***2.6. Will the City of Durham select the contractors and manage the project?***

No. Contracts and the project will be managed by CGIA in collaboration with Durham, the 911 Board, NC Floodplain Mapping Program, NC Geodetic Survey, and the Land Records Management Division in the Secretary of State's Office. The Working Group for Orthophotography Planning under the Statewide Mapping Advisory Committee of the NC Geographic Information Coordinating Council will serve as a technical advisory group for the project.

***2.7. Will there be a Request for Proposal process for orthoimagery service providers to propose projects for all or part of the state?***

No. The NC Floodplain Mapping Program has Qualifications-Based Selection (QBS) contracts in place with multiple qualified contractors who will put together project teams. Durham will leverage that process through its contract with CGIA.

***2.8. Will local government representatives such as property mappers, GIS coordinators, or emergency responders have an opportunity to offer advice to the project?***

Local GIS practitioners have an opportunity through participation in the NC Geographic Information Coordinating Council's Statewide Mapping Advisory Committee (SMAC) and the Working Group for Orthophotography Planning. For more information, see the GICC website and the SMAC:

<http://www.ncgicc.com/Default.aspx?tabid=142>

***2.9. Will the orthoimagery be readily accessible to the public? If yes, in what format(s) and how?***

Orthoimagery, in compressed format (MrSID), will be downloadable by any Internet user from NC OneMap ([www.nconemap.com](http://www.nconemap.com)) in a similar approach to the current file transfer routine (FTP). The project team will share copies of the imagery (via portable disk drives and other available methods) with the intention that state and federal agencies obtain copies from the project (not from individual counties). CGIA is assessing additional ways to make the imagery products readily available online.

***3. What the Project Means for Counties***

***3.1. My county is doing tax revaluation in 2011. We normally contract to receive ortho products by July 1 of the preceding year. What is the sequence of flights and processing and will we receive the ortho products in time for revaluation?***

The delivery of orthoimagery datasets to counties will occur by April 30, 2011. The statewide scope of the project, high resolution of the imagery, processing in large multi-county blocks, and extensive visual and positional quality control all take months to complete before data will be finally packaged by county and approved for distribution. Until products are approved for distribution, a specific delivery schedule by county cannot be predicted. The project team has the county revaluation schedule for 2011 and will consult it as a reference during the distribution stage.

***3.2. Our county's tax revaluation is scheduled for 2012. Could imagery over our county be delayed until 2011 so that we have the freshest images available for the revaluation process?***

The imagery acquisition will not be delayed to accommodate tax revaluation scheduled for 2012 or after. The benefits from the project rely on capturing statewide imagery in the same flying season for consistency across county boundaries.

***3.3. Our county's property mapping department prefers higher resolution orthoimagery (3-inch) to be consistent with map panels that are maintained at a scale of 1 inch = 100 feet. Will the statewide orthoimagery be acquired at only the 0.5-foot resolution (relating to a scale of 1 inch = 200 feet)?***

The statewide project will capture imagery at one resolution (0.5-foot pixels equivalent to 1 inch = 200 feet) which is adequate for base mapping to support 911 operations. Considering the number of tiles to process statewide (more than 58,000) a higher resolution for some locations (requiring additional flights at lower altitude and additional processing and quality control) is not achievable for this project.

***3.4. May our county contract on our own with a contractor outside of the project for higher (3-inch) resolution imagery over our urban areas?***

Not through this contracting process. Independent of this project a county, on its own, may negotiate a separate contract to acquire other imagery products, subject to restrictions from funding sources.

***3.5. May our county order other products through this project such as street centerlines, building footprints?***

No, not directly. To take advantage of efficiencies of a statewide project and to complete the orthoimagery on time, the scope of this project does not include geospatial datasets based on the new orthoimagery. Counties, on their own, may negotiate a contract with a service provider to create additional datasets to take advantage of the new imagery.

***3.6. Our county already has a contract with an orthoimagery provider for 2010 flights. Will the statewide project reimburse our county for the imagery?***

No. To complete a statewide project in a timely way, all of the orthoimagery acquisition for this project will be managed through an existing Qualifications-Based Selection contract through NC Floodplain Mapping Program. A county may contract with a service provider independently, but this project will not reimburse the county and 911 funding restrictions may apply.

***3.7. Our county is negotiating with an orthoimagery provider for 2010 flights. Can the state assure our county that the statewide imagery will be flown in the 2010 flying season and will be available as products by early 2011?***

Yes. The project is statewide and will deliver products as early as December 2010 and before the end of April 2011.

***3.8. Our county flew imagery in 2009. Can that imagery be added to the new set (only one year old)? Is there cost-share money available for 2009 imagery?***

The statewide project cannot reimburse counties for flights in the 2009 flying season. The approved grant from the 911 Board emphasizes imagery that is consistent in currency and resolution.

The USGS awarded cost-share dollars to North Carolina through a cooperative agreement with CGIA, with an emphasis on urban counties that acquired imagery in 2009 or 2010. Consequently, a limited number of urban counties will be eligible for cost-share dollars for sharing 2009 imagery.

***3.9. What if weather conditions or technical problems during the 2010 leaf-off flying season interfere with acquisition of orthoimagery for every tile in the state?***

The project team will do its best to complete the statewide project by June 2011. There is a contingency plan in the existing contracts.

***3.10. If a county chooses to acquire orthoimagery, for example, in 2012 to support tax revaluation, can local 911 fees be applied to the cost?***

Counties may use local 911 funds for imagery every four years, as stated in the 911 Eligible Expenditure List located on the NC 911 Board website, [www.nc911.nc.gov](http://www.nc911.nc.gov). This statewide project does not affect eligible 911 fee expenditures.

## ***4. Using the Orthoimagery Products***

***4.1. Will our E-911 system be required to use the new imagery?***

No, there is no requirement, but it is a good opportunity for a county to refresh imagery in computer aided dispatch systems and to update GIS datasets such as street centerlines.

***4.2. What are technical steps to enable our E-911 system to use the new imagery?***

The computer aided dispatch service provider in a county may be the best source for information about technical steps.

***4.3. Our county's geospatial datasets, including streets, parcels, and building outlines, are based on orthoimagery from a few years ago. What is the recommended approach to getting the datasets to all line up with the new imagery?***

Geographic Information System practitioners in counties and municipalities and/or local contractors have tools and techniques to display streets and other map "layers" on top of the orthoimagery to compare and edit the digital lines created a few years ago to match apparent roads, rooftops, and other ground features in the aerial image.

***4.4. Our state agency benefits from having GeoTIFF images for various projects. We do not have disk space to store all of the imagery. How can we get quick access to selected imagery tiles (uncompressed) online?***

The project includes information technology planning, and implementation of storage and online access related to the NC OneMap framework. More information will be available in the coming months.

## ***5. More About Why Statewide Orthoimagery This Year***

### ***5.1. Why did the City of Durham apply for a grant to fly statewide imagery?***

The North Carolina 911 Board initiated a grant process for Public Safety Answering Points (PSAP) to support local needs. The City of Durham Emergency Communications Center recognized that the value of up-to-date, consistent imagery would apply equally to E-911 operations in its neighboring counties. The Durham PSAP met with the state's Working Group for Orthophotography Planning to discuss statewide issues related to orthoimagery. The current situation is a patchwork of imagery (years captured) and a slower pace of new imagery acquisition that will not meet the goal of imagery no more than four years old in all counties. Considering the aging orthoimagery in many of the rural counties and widespread local budget problems, Durham PSAP concluded that a statewide project would maximize benefits in a timely way.

### ***5.2. Why is the project statewide this year? Why couldn't the state be divided into two, three or four regions for regional acquisition over consecutive years?***

The objectives of the project are to provide all North Carolina counties equivalent, up-to-date base imagery that supports detailed mapping of streets and building locations, and to provide comprehensive, consistent, high quality imagery that is seamless across county boundaries and city limits. If the state were divided into sections, the benefits of the project would be diminished.

### ***5.3. Why Didn't the State Tell Counties Who Were Planning to Fly in 2009 to Wait a Year?***

In 2008, when counties were planning projects that would produce orthoimagery from 2009 flights, the Statewide Mapping Advisory Committee and the Working Group for Orthophotography Planning knew nothing about the possibility of a future grant process relating to the 911 Board and Public Safety Answering Points. The Working Group learned of the opportunity in May 2009 when the City of Durham was drafting its grant proposal.

### ***5.4. How does this project relate to the GICC's Statement of Direction for High Resolution Digital Aerial Imagery (August 20, 2003)***

This project is consistent with the intent of the Statement of Direction: "Aerial imagery developed as part of the program will be consistent with the needs of local government and meet specifications of the North Carolina Land Records Management Program, the North Carolina Geodetic Survey, and the Statewide Mapping Advisory Committee (SMAC)... The program will be consistent with the goals, characteristics, and implementation plans of *NC OneMap*... (until a robust state program for funding orthoimagery is established) the Council directs the SMAC to exploit every appropriate short term opportunity to share costs, negotiate in-kind services or seek other resources of member organizations, federal partners, and others for joint development of high resolution aerial imagery with local governments."

***5.5. How does this project relate to the “Imagery for the Nation” program (National States Geographic Information Council)?***

Orthoimagery that meets local needs as well as state and federal needs is a key component of the Imagery for the Nation program. Under a program administered by the U.S. Geological Survey (USGS), the goal is production of 1-foot resolution imagery (or better) once every three years for 50 percent of the land mass in the lower 48 states. The products of North Carolina’s statewide project will be shared with USGS, more than meeting the goal of the program.